

WEST[Help](#)[Logout](#)[Interrupt](#)[Main Menu](#)[Search Form](#)[Posting Counts](#)[Show 8 Numbers](#)[Edit 8 Numbers](#)[Preferences](#)**Search Results -**

Terms	Documents
heteropolyacid catalyst and l2	1

Database:

US Patents Full-Text Database
US Pre-Grant Publication Full-Text Database
JPO Abstracts Database
EPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Refine Search:

heteropolyacid catalyst and l2

[Clear](#)**Search History****Today's Date: 9/17/2001**

<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	heteropolyacid catalyst and l2	1	L4
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	heteropolyacid catalyst	286	L3
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	aliphatic ester and l1	434	L2
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	ion exchange or zeolite	148676	L1

WEST[Generate Collection](#)**Search Results - Record(s) 1 through 1 of 1 returned.**

☐ 1. Document ID: EP 1097120 A1, WO 200003966 A1, AU 9946323 A, BR 9912038 A
L4: Entry 1 of 1 File: DWPI May 9, 2001

DERWENT-ACC-NO: 2000-171231
DERWENT-WEEK: 200128
COPYRIGHT 2001 DERWENT INFORMATION LTD

TITLE: Vapor phase production of lower aliphatic esters, by reacting a lower olefin with a saturated lower aliphatic mono-carboxylic acid which have had basic nitrogenous compounds removed prior to contact with a heteropolyacid catalyst

INVENTOR: COKER, E N; FROMM, S F T ; SMITH, W J

PRIORITY-DATA: 1998GB-0015117 (July 14, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 1097120 A1	May 9, 2001	E	000	C07C067/04
WO 200003966 A1	January 27, 2000	E	016	C07C067/04
AU 9946323 A	February 7, 2000	N/A	000	C07C067/04
BR 9912038 A	April 3, 2001	N/A	000	C07C067/04

INT-CL (IPC): C07C 67/04; C07C 69/14

Full Title ☐ CLS:1 ☐ REF:1 ☐

[Generate Collection](#)

Terms	Documents
heteropolyacid catalyst and l2	1

[Display](#)

10

Documents, starting with Document:

1

Display Format: [CIT](#)[Change Format](#)

<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	110 and acetic acid and ammonia	9	<u>L12</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	110 and acetic acid	13	<u>L11</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	ion exchange and heteropolyacid catalyst	32	<u>L10</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	ion exchange and l4 and hetero poly acid catalyst	0	<u>L9</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	ion exchange and l4 and hetero polyacid catalyst	0	<u>L8</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	ion exchange and l4 and heteropolyacid catalyst	0	<u>L7</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	ion exchange and l4	2	<u>L6</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l4 and nitrogen\$5	1	<u>L5</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	5241106.pn. or 4205182.pn. or 3644497.pn. or 4405808.pn. or 4927954.pn.	14	<u>L4</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l1 and nitrogen\$5	0	<u>L3</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l1 and nitrogenous compound	0	<u>L2</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	ep-538826-\$.did.	2	<u>L1</u>

WEST[Generate Collection](#)**Search Results - Record(s) 1 through 9 of 9 returned.**☐ 1. Document ID: US 6040472 A

L12: Entry 1 of 9

File: USPT

Mar 21, 2000

US-PAT-NO: 6040472

DOCUMENT-IDENTIFIER: US 6040472 A

TITLE: Catalyst for use in producing carboxylic esters

DATE-ISSUED: March 21, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yamamatsu; Setsuo	Fuji	N/A	N/A	JPX
Yamaguchi; Tatsuo	Shizuoka-ken	N/A	N/A	JPX
Yokota; Koshiro	Pasadena	CA	N/A	N/A

US-CL-CURRENT: 560/210; 502/102, 560/238

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	RMIC	Draw Desc	Image
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☐ 2. Document ID: US 5621097 A

L12: Entry 2 of 9

File: USPT

Apr 15, 1997

US-PAT-NO: 5621097

DOCUMENT-IDENTIFIER: US 5621097 A

TITLE: Oxidation of organosulphur compounds

DATE-ISSUED: April 15, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brown; Scott W.	Standish	N/A	N/A	GBX
Lee; Angela M.	West Derby	N/A	N/A	GBX
Oakes; Stephen C.	Widnes	N/A	N/A	GBX

US-CL-CURRENT: 540/342; 562/115, 562/30

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	RMIC	Draw Desc	Image
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☐ 3. Document ID: US 5510308 A

L12: Entry 3 of 9

File: USPT

Apr 23, 1996

US-PAT-NO: 5510308

DOCUMENT-IDENTIFIER: US 5510308 A

TITLE: Cation and vanadium substituted heteropolyacid catalysts
for vapor phase oxidation

DATE-ISSUED: April 23, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kourtakis; Kostantinos	Hockessin	DE	N/A	N/A

US-CL-CURRENT: 502/209; 549/259

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 4. Document ID: US 4853357 A

L12: Entry 4 of 9

File: USPT

Aug 1, 1989

US-PAT-NO: 4853357

DOCUMENT-IDENTIFIER: US 4853357 A

TITLE: Olefin oxidation catalyst system

DATE-ISSUED: August 1, 1989

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Vasilevskis; Janis	Los Gatos	CA	N/A	N/A
De Deken; Jacques C.	Palo Alto	CA	N/A	N/A
Saxton; Robert J.	Mountain View	CA	N/A	N/A
Wentrcek; Paul R.	Redwood City	CA	N/A	N/A
Fellmann; Jere D.	Livermore	CA	N/A	N/A
Kipnis; Lyubov S.	Sunnyvale	CA	N/A	N/A

US-CL-CURRENT: 502/165; 502/167, 502/170, 502/201, 502/204,
502/206, 502/207, 502/209, 502/210, 502/211, 502/213, 502/215,
502/217, 502/218, 502/219, 502/220, 502/221, 502/228, 502/230,
502/241, 502/242, 502/245, 502/246, 502/247, 502/254, 502/255,
502/262, 502/305, 502/308, 502/311, 502/312, 502/313, 502/314,
502/316, 502/324, 502/326, 502/331, 502/338, 502/339

Full	Title	Citation	Front	Review	Classification	Date	Reference
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KWIC	Draw Desc	Image
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☐ 5. Document ID: US 4723041 A

L12: Entry 5 of 9

File: USPT

Feb 2, 1988

US-PAT-NO: 4723041

DOCUMENT-IDENTIFIER: US 4723041 A

TITLE: Olefin oxidation catalyst system

DATE-ISSUED: February 2, 1988

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP	CODE	COUNTRY
Vasilevskis; Janis	Los Gatos	CA	N/A		N/A
De Deken; Jacques C.	Palo Alto	CA	N/A		N/A
Saxton; Robert J.	Mountain View	CA	N/A		N/A
Wentrcek; Paul R.	Redwood City	CA	N/A		N/A
Fellmann; Jere D.	Livermore	CA	N/A		N/A
Kipnis; Lyubov S.	Sunnyvale	CA	N/A		N/A

US-CL-CURRENT: 568/401; 568/360

Full	Title	Citation	Front	Review	Classification	Date	Reference
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HMIC	Draw Desc	Image
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☐ 6. Document ID: US 4720474 A

L12: Entry 6 of 9

File: USPT

Jan 19, 1988

US-PAT-NO: 4720474

DOCUMENT-IDENTIFIER: US 4720474 A

TITLE: Olefin oxidation catalyst system

DATE-ISSUED: January 19, 1988

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP	CODE	COUNTRY
Vasilevskis; Janis	Los Gatos	CA	N/A		N/A
De Deken; Jacques C.	Palo Alto	CA	N/A		N/A
Saxton; Robert J.	Mountain View	CA	N/A		N/A
Wentrcek; Paul R.	Redwood City	CA	N/A		N/A
Fellmann; Jere D.	Livermore	CA	N/A		N/A
Kipnis; Lyubov S.	Sunnyvale	CA	N/A		N/A

US-CL-CURRENT: 502/165; 502/167, 502/170, 502/201, 502/204,
502/206, 502/207, 502/209, 502/210, 502/211, 502/213, 502/215,
502/217, 502/218, 502/219, 502/220, 502/221, 502/228, 502/230,
502/241, 502/242, 502/245, 502/254, 502/255, 502/262, 502/305,
502/308, 502/313, 502/314

Full	Title	Citation	Front	Review	Classification	Date	Reference
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HMIC	Draw Desc	Image
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☐ 7. Document ID: US 4508918 A

L12: Entry 7 of 9

File: USPT

Apr 2, 1985

US-PAT-NO: 4508918

DOCUMENT-IDENTIFIER: US 4508918 A

TITLE: Method of producing cyclohexane derivatives directly
from aromatic hydrocarbons

DATE-ISSUED: April 2, 1985

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yasuhara; Yutaka	Nagoya	N/A	N/A	JPX
Nishino; Masaki	Nagoya	N/A	N/A	JPX
Matsuhisa; Seikichi	Nagoya	N/A	N/A	JPX

US-CL-CURRENT: 560/241; 568/338, 568/376, 568/832, 568/834,
568/835, 570/212, 585/269

Full	Title	Citation	Front	Review	Classification	Date	Reference
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RMK	Draw Desc	Image
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☐ 8. Document ID: US 4212990 A

L12: Entry 8 of 9

File: USPT

Jul 15, 1980

US-PAT-NO: 4212990

DOCUMENT-IDENTIFIER: US 4212990 A

TITLE: Method for producing cyclohexane derivatives directly
from aromatic hydrocarbons

DATE-ISSUED: July 15, 1980

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yasuhara; Yutaka	Nagoya	N/A	N/A	JPX
Nishino; Masaki	Nagoya	N/A	N/A	JPX
Matsuhira; Seikichi	Nagoya	N/A	N/A	JPX

US-CL-CURRENT: 560/241; 568/376, 568/832, 568/834, 568/835,
585/269

Full	Title	Citation	Front	Review	Classification	Date	Reference
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RMK	Draw Desc	Image
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☐ 9. Document ID: US 4067915 A

L12: Entry 9 of 9

File: USPT

Jan 10, 1978

US-PAT-NO: 4067915

DOCUMENT-IDENTIFIER: US 4067915 A

TITLE: Method for producing cyclohexane derivatives directly
from aromatic hydrocarbons

DATE-ISSUED: January 10, 1978

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yasuhara; Yutaka	Nagoya	N/A	N/A	JA
Nishino; Masaki	Nagoya	N/A	N/A	JA
Matsuhisa; Seikichi	Nagoya	N/A	N/A	JA

US-CL-CURRENT: 570/212; 560/231, 568/832, 568/834, 568/835

Full	Title	Citation	Front	Review	Classification	Date	Reference
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EMOD	Draw Desc	Image
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Generate Collection

Terms	Documents
110 and acetic acid and ammonia	9

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10

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9

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Refine Search:

110 and acetic acid and ammonia

Clear**Search History****Today's Date: 9/17/2001**

FILE 'HOME' ENTERED AT 14:32:37 ON 17 SEP 2001

=> file registry

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.15

0.15

FILE 'REGISTRY' ENTERED AT 14:32:59 ON 17 SEP 2001

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DICTIONARY FILE UPDATES: 16 SEP 2001 HIGHEST RN 357163-97-4

TSCA INFORMATION NOW CURRENT THROUGH January 11, 2001

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conducting SmartSELECT searches.

Structure search limits have been increased. See HELP SLIMIT
for details.

=> s ethyl acetate/cn

L1 1 ETHYL ACETATE/CN

=> ds l1

DS IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.

For a list of commands available to you in the current file, enter

"HELP COMMANDS" at an arrow prompt (=>).

=> d l1

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2001 ACS

RN 141-78-6 REGISTRY

CN Acetic acid ethyl ester (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Acetic acid, ethyl ester

CN Acetic ether

CN Acetidin

CN Acetoxyethane

CN **Ethyl acetate**

CN Ethyl ethanoate

CN EtOAc

CN Vinegar naphtha

FS 3D CONCORD

MF C4 H8 O2

CI COM

LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS,
BIOTECHNO, CA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,
CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*,
DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2,
GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*,
MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO,
SYNTHLINE, TOXLINE, TOXLIT, TRCTHERMO*, TULSA, ULIDAT, USAN, USPATFULL,
VETU, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

Et-O-Ac

17386 REFERENCES IN FILE CA (1967 TO DATE)

98 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

17416 REFERENCES IN FILE CAPLUS (1967 TO DATE)

=> file caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

5.61

5.76

FILE 'CAPLUS' ENTERED AT 14:33:50 ON 17 SEP 2001

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FILE COVERS 1947 - 17 Sep 2001 VOL 135 ISS 13

FILE LAST UPDATED: 16 Sep 2001 (20010916/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

This file supports REGISTRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

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=> s 141-78-6/prep

17420 141-78-6

2778383 PREP/RL

L2 1270 141-78-6/PREP

(141-78-6 (L) PREP/RL)

=> s 141-78-6/pur

17420 141-78-6

151139 PUR/RL

L3 133 141-78-6/PUR

(141-78-6 (L) PUR/RL)

=> s 12 or 13

L4 1270 L2 OR L3

=> s ethylene and acetic acid and 14

372353 ETHYLENE

120741 ACETIC

3005932 ACID

98859 ACETIC ACID

(ACETIC(W)ACID)

L5 82 ETHYLENE AND ACETIC ACID AND L4

```

=> s ion exchange or zeolite
      883277 ION
      446597 EXCHANGE
      114114 ION EXCHANGE
          (ION(W) EXCHANGE)
      71202 ZEOLITE
L6    180965 ION EXCHANGE OR ZEOLITE

=> s heteropolyacid catalyst
      901 HETEROPOLYACID
      550524 CATALYST
L7    170 HETEROPOLYACID CATALYST
          (HETEROPOLYACID(W) CATALYST)

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=> s 15 and 16 and 17
L8    0 L5 AND L6 AND L7

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=> s 15 and 17
L9    2 L5 AND L7

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=> s 15 and 16
L10   8 L5 AND L6

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=> d 19 1-2 ibib abs hitstr

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L9    ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2001 ACS
ACCESSION NUMBER:    1999:634057  CAPLUS
DOCUMENT NUMBER:     131:338546
TITLE:               Research and development on esterification technology
                      for acetic acid with
                      ethylene to prepare ethyl acetate
AUTHOR(S):           Zhu, Ji-fang; Liao, Shi-jun; Chen, Huan-qing; Mei,
                      Ci-yun
CORPORATE SOURCE:    Dep. Appl. Chem., South China Univ. Technol., Canton,
                      510641, Peop. Rep. China
SOURCE:              Huaxue Fanying Gongcheng Yu Gongyi (1999), 15(3),
                      314-321
                      CODEN: HFGGEU; ISSN: 1001-7631
PUBLISHER:           Zhejiangsheng Chuban Duiwai Maoyi Gongsi
DOCUMENT TYPE:        Journal; General Review
LANGUAGE:             Chinese
AB    A review with 25 refs. The advances in esterification of acetic
acid with ethylene to prep. Et acetate, including the
catalyst and kinetics researches were described. Among the catalysts
developed, the heteropoly compd. catalyst holds some promise in use of
practical applications.
IT    141-78-6P, Ethyl acetate, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
      (development of technol. for esterification of acetic
acid with ethylene to Et acetate)
RN    141-78-6  CAPLUS
CN    Acetic acid ethyl ester (8CI, 9CI)  (CA INDEX NAME)

```

Et- O- Ac

```

L9    ANSWER 2 OF 2  CAPLUS  COPYRIGHT 2001 ACS
ACCESSION NUMBER:    1979:574834  CAPLUS
DOCUMENT NUMBER:     91:174834
TITLE:               Ethyl esters of aliphatic carboxylic acids
INVENTOR(S):         Izumi, Yusuke; Maekawa, Junji; Suzuki, Katsumi
PATENT ASSIGNEE(S):  Tokuyama Soda Co., Ltd., Japan
SOURCE:              Ger. Offen., 29 pp.
                      CODEN: GWXXBX

```

DOCUMENT TYPE: Paten
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2842265	A1	19790405	DE 1978-2842265	19780928
JP 54052025	A2	19790424	JP 1977-115540	19770928
JP 56030334	B4	19810714		
US 4205182	A	19800527	US 1978-945666	19780925
GB 2005679	A	19790425	GB 1978-38352	19780927
GB 2005679	B2	19820127		
CA 1128544	A1	19820727	CA 1978-312172	19780927
FR 2404621	A1	19790427	FR 1978-27754	19780928
FR 2404621	B1	19800704		

PRIORITY APPLN. INFO.: JP 1977-115540 19770928

AB Et alkanoates were prepd. by liq. phase esterification of aliph. carboxylic acids with CH₂:CH₂ over a heteropolyacid of W or acidic metal salt thereof in the presence of .ltoreq.7% H₂O. Thus, passing CH₂:CH₂ into AcOH contg. H₄(SiW₁₂O₄₀) and 1.8% H₂O 3 h at 210.degree. gave 38.5% EtOAc, 0.07% AcO-, and 0.06% AcOCHMeEt, with 38.6% yield of EtOAc with 99.2% selectivity.

IT **141-78-6P**, preparation
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(prepn. of, by tungsten heteropolyacid-catalyzed esterification of **acetic acid** with **ethylene**)

RN 141-78-6 CAPLUS

CN Acetic acid ethyl ester (8CI, 9CI) (CA INDEX NAME)

Et-O-Ac

=> s l10 1-5 ibibi abs

MISSING OPERATOR L10 1-5

The search profile that was entered contains terms or nested terms that are not separated by a logical operator.

=> d l10 1-5 ibibi abs

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The following are valid formats:

ABS ----- GI and AB
ALL ----- BIB, AB, IND, RE
APPS ----- AI, PRAI
BIB ----- AN, plus Bibliographic Data and PI table (default)
CAN ----- List of CA abstract numbers without answer numbers
CBIB ----- AN, plus Compressed Bibliographic Data
DALL ----- ALL, delimited (end of each field identified)
DMAX ----- MAX, delimited for post-processing
FAM ----- AN, PI and PRAI in table, plus Patent Family data
FBIB ----- AN, BIB, plus Patent FAM
IND ----- Indexing data
IPC ----- International Patent Classifications
MAX ----- ALL, plus Patent FAM, RE
PATS ----- PI, SO
SAM ----- CC, SX, TI, ST, IT
SCAN ----- CC, SX, TI, ST, IT (random display, no answer numbers;
SCAN must be entered on the same line as the DISPLAY,
e.g., D SCAN or DISPLAY SCAN)
STD ----- BIB, IPC, and NCL
IABS ----- ABS, indented with text labels

IALL ----- ALL, indented with text labels
IBIB ----- BIB, indented with text labels
IMAX ----- MAX, indented with text labels
ISTD ----- STD, indented with text labels

OBIB ----- AN, plus Bibliographic Data (original)
OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations
SIBIB ----- IBIB, no citations

HIT ----- Fields containing hit terms
HITIND ----- IC, ICA, ICI, NCL, CC and index field (ST and IT)
 containing hit terms
HITRN ----- HIT RN and its text modification
HITSTR ----- HIT RN, its text modification, its CA index name, and
 its structure diagram
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
 its structure diagram
KWIC ----- Hit term plus 20 words on either side
OCC ----- Number of occurrence of hit term and field in which it occurs

To display a particular field or fields, enter the display field codes. For a list of the display field codes, enter HELP DFIELDS at an arrow prompt (=>). Examples of formats include: TI; TI,AU; BIB,ST; TI,IND; TI,SO. You may specify the format fields in any order and the information will be displayed in the same order as the format specification.

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ENTER DISPLAY FORMAT (BIB):end

=> d his

(FILE 'HOME' ENTERED AT 14:32:37 ON 17 SEP 2001)

FILE 'REGISTRY' ENTERED AT 14:32:59 ON 17 SEP 2001

L1 1 S ETHYL ACETATE/CN

FILE 'CAPLUS' ENTERED AT 14:33:50 ON 17 SEP 2001

L2 1270 S 141-78-6/PREP
L3 133 S 141-78-6/PUR
L4 1270 S L2 OR L3
L5 82 S ETHYLENE AND ACETIC ACID AND L4
L6 180965 S ION EXCHANGE OR ZEOLITE
L7 170 S HETEROPOLYACID CATALYST
L8 0 S L5 AND L6 AND L7
L9 2 S L5 AND L7
L10 8 S L5 AND L6

=> d l10 1-5 ibib abs

L10 ANSWER 1 OF 8 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1999:686762 CAPLUS

DOCUMENT NUMBER: 131:288011

TITLE: Manufacture of ethyl acetate by the addition reaction
of **acetic acid** with

ethylene using **zeolite** catalysts

INVENTOR(S): Crane, Robert A.; Brown, Stephen H.; De Caul, Lorenzo

PATENT ASSIGNEE(S): Mobil Oil Corporation, USA

SOURCE: U.S., 3 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5973193	A	19991026	US 1998-116385	19980716
WO 2000003968	A1	20000127	WO 1999-US15655	19990712
W: AU, CA, JP, SG				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9949840	A1	20000207	AU 1999-49840	19990712
PRIORITY APPLN. INFO.:			US 1998-116385	A 19980716
			WO 1999-US15655	W 19990712

AB Et acetate is prepd. in high yield and selectivity by the addn. reaction of **acetic acid** with **ethylene** in the presence of a solid, acidic catalyst comprising a **zeolite** selected from: MCM-22, MCM-49, MCM-56, ZSM-5, and .beta.-**zeolite**.

REFERENCE COUNT: 6

REFERENCE(S):

- (1) Anon; EP 0031252 1981 CAPLUS
- (2) Anon; EP 0073141 1983 CAPLUS
- (3) Anon; EP 0538826 1993 CAPLUS
- (4) Wunder; US 5225388 1993 CAPLUS
- (5) Young; US 4365084 1982 CAPLUS

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 2 OF 8 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1997:622186 CAPLUS

DOCUMENT NUMBER: 127:292799

TITLE: Catalytic transformation of ethanol over microporous vanadium silicate molecular sieves with MEL structure (VS-2)

AUTHOR(S): Kannan, S.; Sen, T.; Sivasanker, S.

CORPORATE SOURCE: National Chemical Laboratory, Pune, 411 008, India

SOURCE: J. Catal. (1997), 170(2), 304-310
CODEN: JCTLA5; ISSN: 0021-9517

PUBLISHER: Academic

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The transformation of ethanol was carried out over vanadium silicate mol. sieves with MEL topol. (VS-2) with different Si/V at. ratios in the temp. range 523-623 K. The reaction was performed in a fixed-bed down-flow reactor at atm. pressure. Acetaldehyde, di-Et ether, and **ethylene** were the major products along with small amts. of acetone, **acetic acid**, Et acetate, and carbon oxides. The conversion increased while the selectivity toward acetaldehyde decreased with increase in reaction temp. The kinetics of the reaction (at 5% conversion) indicated a nearly first-order dependence of the rate of formation of the major products on ethanol. The formation of acetaldehyde is suggested to be mainly through the involvement of the vanadyl species (V=O) while di-Et ether prodn. is controlled by the simultaneous involvement of V=O and V-O-Si assocd. with vanadium in the lattice. The intrinsic activity of vanadium incorporated into the **zeolite** framework is nearly 10 times that of the vanadium present in the impregnated sample. The nature of the sites involved in the formation of the different products, as elucidated from spectroscopic techniques (NMR and ESR), and the possible reaction mechanisms are proposed.

L10 ANSWER 3 OF 8 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1997:238691 CAPLUS

DOCUMENT NUMBER: 126:306527

TITLE: Preparation of polyfunctional metal **zeolite** catalyst for the multistage oxidative conversion of ethyl alcohol into ethyl acetate

AUTHOR(S): Shakhtakhtinskii, T. N.; Aliev, A. M.; Kuliev, A. R.; Medzhidova, S. M.; Muradov, M. Kh.

CORPORATE SOURCE: Inst. Teor. Probl. Khim. Tekhnol. Akad. Nauk, Baku, Azerbaijan

SOURCE: Dokl. Akad. Nauk (1995), 343(4), 496-499

CODEN: JAKNEQ; ISSN: 0869-5652

PUBLISHER: MAIK Nauka
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB A multifunctional catalyst effective for all the stages of ethanol gas phase transformation to Et acetate is developed. Copper- and palladium-contg. mordenite, clinoptilolite, and HNaY-type zeolites were tested as catalysts. The most effective in ethanol oxidn. to acetaldehyde is natural clinoptilolite. The optimum metal concn. in clinoptilolite is 0.5% Cu, 0.1% Pd ions.

L10 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1991:209553 CAPLUS

DOCUMENT NUMBER: 114:209553

TITLE: Formation of ketenes by reaction of carboxylic acids over alkali metal-exchanged zeolites

AUTHOR(S): Parker, L. M.; Bibby, D. M.; Miller, I. J.

CORPORATE SOURCE: Chem. Div., DSIR, Petone, N. Z.

SOURCE: J. Catal. (1991), 129(2), 438-46

CODEN: JCTLA5; ISSN: 0021-9517

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The formation of ketene from HOAc by reaction over alkali metal-exchanged zeolites at .apprx.350.degree. and low partial pressure is reported. Acetone and CO₂ are also produced. The greatest proportion of ketene is produced by large-pore faujasite zeolites exchanged with the smallest cations (Li⁺ and Na⁺). The corresponding ketenes from EtCO₂H and iso-PrCO₂H, but not PrCO₂H, are also obsd. It is possible to react the ketene in situ by addn. of a further reactant to the HOAc feed, provided the addnl. reactant does not react with the **zeolite** catalyst. For example, MeOH and Me₂NH are readily acetylated but EtOH reacts to produce C₂H₄ and water. Reaction of HOAc with Me₂NH over NaY at 300.degree. gives a 70% conversion of Me₂NH with 100% selectivity to AcNMe₂.

L10 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1990:178027 CAPLUS

DOCUMENT NUMBER: 112:178027

TITLE: Catalytic property of HZSM-5 in the esterification reaction. II. Effects of cation-exchange degree, reaction conditions and structure of reactants

AUTHOR(S): Zhang, Huaibin; Zhuang, Mengfu; Li, Hexuan

CORPORATE SOURCE: Dep. Chem., Nankai Univ., Tianjin, Peop. Rep. China

SOURCE: Ranliao Huaxue Xuebao (1989), 17(1), 62-8

CODEN: RHXUD8; ISSN: 0253-2409

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The effects of cation-exchange degree, reaction conditions and structure of reactants on the catalytic property were discussed. It was found that the catalytic activity underwent abrupt increase at 60% cation-exchange for ethanol esterification and at 70% for 1-butanol. The phenomenon was closely related to the strength of the acid sites and the sizes of reactant and product mols. Stability expts. confirmed that the stability of catalyst was obviously reduced when the degree of cation-exchange exceeded 73%, owing to coke formation at strong acid sites. Esterification of **acetic acid** with C₁-C₆ alcs. on HZSM-5 **zeolite** proved that **ethylene** was not formed with ethanol, and small quantities of olefins were formed with 1-propanol, 1-butanol, 1-pentanol and 1-hexanol. However, the esterifications of **acetic acid** with isopropanol produced only 5% of ester, and with tert-Bu alc., no ester was formed because alkenes were the major products. The esterification of benzyl alc. with **acetic acid** and hexanoic acid and the esterification of cyclohexanol with **acetic acid** were all successful, but the esterification of benzoic acid with 1-butanol was difficult on HZSM-5 due to steric hindrance.

FILE 'REGISTRY' ENTERED AT 14:32:59 ON 17 SEP 2001
L1 1 S ETHYL ACETATE/CN

FILE 'CAPLUS' ENTERED AT 14:33:50 ON 17 SEP 2001
L2 1270 S 141-78-6/PREP
L3 133 S 141-78-6/PUR
L4 1270 S L2 OR L3
L5 82 S ETHYLENE AND ACETIC ACID AND L4
L6 180965 S ION EXCHANGE OR ZEOLITE
L7 170 S HETEROPOLYACID CATALYST
L8 0 S L5 AND L6 AND L7
L9 2 S L5 AND L7
L10 8 S L5 AND L6

FILE 'STNGUIDE' ENTERED AT 14:41:43 ON 17 SEP 2001

=> d 110 6-8 ibib abs

YOU HAVE REQUESTED DATA FROM FILE 'CAPLUS' - CONTINUE? (Y)/N:y

L10 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1983:88841 CAPLUS
DOCUMENT NUMBER: 98:88841
TITLE: Alkyl carboxylates
INVENTOR(S): Young, Lewis B.
PATENT ASSIGNEE(S): Mobil Oil Corp. , USA
SOURCE: U.S., 9 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4365084	A	19821221	US 1980-218148	19801219
US 4448983	A	19840515	US 1982-429936	19820930

PRIORITY APPLN. INFO.: US 1980-218148 19801219

AB Carboxylic acids, RCO₂H (R = alkyl, acyl, haloalkyl, H) were reacted with a linear or slightly branched olefin with up to 20 C and no unsatn. at C-2 at 250-600.degree. and 104-107 Pa in the presence of a **zeolite** catalyst to yield .alpha.-methylalkyl carboxylates as the major alkyl carboxylate product. Thus esterification of AcOH with E-4-octene in the presence of HZSM-12 **zeolite** catalyst at 150.degree. and 170 psig gave 61% 2-octyl acetate, 24% 3-octyl acetate, and 15% 4-octyl acetate.

L10 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1982:527077 CAPLUS
DOCUMENT NUMBER: 97:127077
TITLE: Carboxylic acid esters by reaction of olefins with carboxylic acids
INVENTOR(S): Sato, Haruhito
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: Ger. Offen., 24 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3149979	A1	19820722	DE 1981-3149979	19811217
DE 3149979	C2	19850620		
JP 57106640	A2	19820702	JP 1980-182856	19801225

JP 04046941	B4	19800731		
US 4465852	A	19840814	US 1981-330010	19811211
CA 1168257	A1	19840529	CA 1981-392493	19811217
GB 2092134	A	19820811	GB 1981-38414	19811221
GB 2092134	B2	19841212		
FR 2497196	A1	19820702	FR 1981-23915	19811222
FR 2497196	B1	19861121		

PRIORITY APPLN. INFO.:

JP 1980-182856 19801225

AB Esters were prepd. by reaction of an olefin with a carboxylic acid in the presence of a metal silicate with a mol ratio SiO₂-metal oxide .gtoreq.12 and the metal was chosen from groups III, IV, V, VIB, and VIII. Data were given for runs with 7 such catalysts, contg., e.g., Na₂O, Cr₂O₃, B₂O₃, or La₂O₃, and AcOH with C₂H₄ or C₃H₆.

L10 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1970:31173 CAPLUS

DOCUMENT NUMBER: 72:31173

TITLE: Vapor phase synthesis of esters over porous
ion-exchange resin catalyst. I.
Vapor-phase synthesis of ethyl acetate from
ethylene and **acetic acid**

AUTHOR(S): Murakami, Yuichi; Hattori, Tatsuhiko; Uchida, Hiroshi

CORPORATE SOURCE: Nagoya Univ., Nagoya, Japan

SOURCE: Kogyo Kagaku Zasshi (1969), 72(9), 1945-8

CODEN: KGKZA7

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB In the title synthesis, catalysts were active in the order: porous **ion-exchange** resin Amberlyst 15 (I) > silicotungstic acid-silica gel (II) > phosphoric acid-kieselguhr > gel-form **ion-exchange** resin Amberlite IR-120B. In the case of II, the yield of EtOAc was max. (30%) at 10:1 molar C₂H₄-AcOH, space velocity 163 hr⁻¹, and 200.degree., but the activity decreased rapidly in 3 hr to 10% yield. When I was used, max. yield of 60% was obtained at 10:1 molar C₂H₄-EtOH, space velocity 175 hr⁻¹, and 140.degree., but the yield was only 8% at 120.degree. and at 150.degree. catalytic activity decreased rapidly. Addn. of H₂O (>10 mole %) decreased the yield of EtOAc to <30% and addn. of .apprx.60 mole % H₂O yielded .apprx.10% I. Increase of space velocity and decrease C₂H₄-AcOH decreased the yield of I.

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